

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 8271-2-5 (1981): Quartz Crystal Units Used in Oscillators, Part 2: Series AA, Section 5: Quartz Crystal Unit Type AA-05 [LITD 5: Semiconductor and Other Electronic Components and Devices]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



Indian Standard

SPECIFICATION FOR
QUARTZ CRYSTAL UNITS USED IN OSCILLATORS

PART II SERIES AA

Section 5 Quartz Crystal Unit Type AA-05

0. General — This standard shall be read in conjunction with IS : 8271 (Part I)-1981 ' Specification for quartz crystal units used for frequency control and selection: Part I General requirements and tests (first revision) '.

1. Outline and Dimensions — Holder outline shall conform to type AA (See sheet 1A of IS : 4570-1968 ' Specification for crystal holders ').

2. Marking — See 8 of IS : 8271 (Part I)-1981.

3. Construction and Workmanship — See 7 of IS : 8271 (Part I)-1981.

4. Test Schedule and Detail Requirements

4.1 General Conditions for Test — See 9.2 of IS : 8271 (Part I)-1981.

4.2 Test Schedule — The sequence and grouping of type, routine and acceptance tests shall be as per 9.1 of IS : 8271 (Part I)-1981.

4.3 Detail Requirements — The detail requirements and applicable to this particular type of crystal unit shall be as specified in Table 1.

TABLE 1 DETAIL REQUIREMENTS OF QUARTZ CRYSTAL UNIT TYPE AA-05

Characteristics (1)	Requirements (2)	
a) Type of holder	AA (See 1)	
b) Frequency range	1 to 20 MHz	
c) Frequency tolerance		
i) Room temperature	± 70 ppm	
ii) Operating temperature range	± 20 ppm	
d) Frequency stability	± 5 ppm	
e) Resonance resistance	See Table 2	
f) Mode of oscillation	Fundamental	
g) Load capacitance	Infinity (Series)	
h) Capacitance shunt	7 pF, Maximum	
j) Reference temperature	75°C ± 1°C	
k) Temperature range		
i) Operating	75°C ± 5°C	
ii) Operable	-55°C to +70°C and +80°C to +90°C	
m) Test set, calibration values and rated drive level	See Table 3	
n) Shock [as per 9.15 of IS : 8271 (Part I)-1981]	1 to 2.0 MHz	Over 2.0 to 20 MHz
i) Frequency change permitted	± 10 ppm	± 5 ppm
ii) Resonance resistance change permitted	± 15 percent	± 10 percent
p) Vibration [as per 9.16.1 (severity A) of IS : 8271 (Part I)-1981]		
i) Frequency change permitted	± 10 ppm	± 5 ppm
ii) Resonance resistance change permitted	± 15 percent	± 10 percent
q) Temperature cycling		
i) Frequency change permitted	± 10 ppm	± 5 ppm
ii) Resonance resistance change permitted	± 15 percent	± 10 percent
r) Temperature run		
i) Frequency change permitted	± 10 ppm	± 5 ppm
ii) Resonance resistance change permitted	± 15 percent	± 10 percent
s) Ageing		
Frequency change permitted	5 ppm	—

TABLE 2 RESONANCE RESISTANCE

[Table 1(e)]

Frequency Range	Maximum Resonance Resistance	Frequency Range	Maximum Resonance Resistance
MHz	ohms	MHz	ohms
(1)	(2)	(1)	(2)
From 0.9 to 1	440	Over 2.25 to 2.6	130
Over 1.0 to 1.12	400	Over 2.6 to 3	90
Over 1.12 to 1.25	380	Over 3 to 3.4	70
Over 1.25 to 1.37	340	Over 3.4 to 3.75	52
Over 1.37 to 1.5	300	Over 3.75 to 4.0	45
Over 1.50 to 1.62	280	Over 4 to 5	37
Over 1.62 to 1.75	250	Over 5 to 7	25
Over 1.75 to 1.87	220	Over 7 to 10	20
Over 1.87 to 2.0	190	Over 10 to 15	18
Over 2.0 to 2.12	170	Over 15 to 20	15
Over 2.12 to 2.25	150		

TABLE 3 TEST SET, CALIBRATION VALUES AND RATED DRIVE LEVEL

[Table 1(i)]

SI No.	Frequency Range	Calibration Values			Rated Drive Level
		Resistance	Crystal Current	Resistor Voltage Drop	
	MHz	ohms	mA	V	mW
(1)	(2)	(3)	(4)	(5)	(6)
1	From 0.8 to 1.5	100	10	—	10.0 ± 2.0
2	Over 1.5 to 2.25	50	15	—	
3	Over 2.25 to 3.4	40	15	—	
4	Over 3.4 to 5.1	25	20	—	
5	Over 5.1 to 7.5	14	25	—	
6	Over 7.5 to 10	11	30	—	
7	Over 10 to 15	13	20	—	5.0 ± 1.0
8	Over 15 to 20	10	—	0.22	5.0 ± 1.0

For SI No. 1 to 7 — Test Set TS-330/TSM

For SI No. 8 — Test Set TS-683/TSM